The Rise and Fall of the Resource Curse

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Abstract:
A substantial political economy literature claims that an abundance of natural resource wealth—most particularly crude oil—creates and perpetuates authoritarian regimes. Improvements in statistical techniques and data generation over the past decade have allowed scholars to evaluate that claim. That new literature finds that the evidence is inconsistent with law-like statements about the effect of crude oil abundance on authoritarianism. The rise and fall of the resource curse hypothesis may therefore be instructive as scholars advance and test other theories about the distribution of authoritarianism and democracy around the planet. Specifically, it suggests the importance of taking history seriously both in the testing of theories and in their development.

Keywords:
Resource Curse; Authoritarianism; Petroleum; Oil; Middle East; North Africa.

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A substantial political economy literature claims that an abundance of natural resource wealth—most particularly crude oil—creates and perpetuates authoritarian regimes. The genesis of this idea can be found in Mahdavy (1970), which, on the basis of data from the 1950s and 1960s for a small group of Middle Eastern countries, noted that petroleum revenues constituted an external source of rent directly captured by governments. This gave them "an independence from people seldom found in other countries." Mahdavy (1970, 466) hypothesized that "…in political terms, the power of the government to bribe pressure groups or to coerce dissidents may be greater than otherwise." This hypothesis became a dominant theme in the country case study literature about the absence of democracy in the Middle East, Africa, and Latin America (e.g., Skocpol 1982; Anderson 1987, 1995; Beblawi 1987; Luciani 1987; Crystal 1989, 1990; Chaudry 1994, 1997; Van de Walle 1994; Khan 1994; Shambayati, 1994; Yates 1996; Clark 1997, 1998; Karl 1997; Gardinier 2000; Dillman 2000; Hodges 2001; Bellin 2004; Vandewalle 1998, 2006). In time, the hypothesis took on the character of a general law. Consider, for example, the unqualified tone in Luciani (1987, 77): "Democracy is not a problem for allocation states…The fact is that there is 'no representation without taxation' and there are no exceptions to this version of the rule." This idea was subsequently picked up in influential books on democratization around the world, such as Huntington (1991, 65).

In the late 1990s researchers began to subject the hypothesis that natural resource abundance is associated with authoritarianism to tests against cross-country datasets (Barro 1998; Ross 2001; Wantchekon 2002; Jensen and Wantchekon 2004). Over time, that literature grew increasingly sophisticated: researchers developed better proxies for oil and mineral abundance, employed instrumental variables to address reverse causality, and explored the effects of oil on the durability of authoritarian regimes using survival analysis or dynamic probit

regressions (Smith 2004; Ulfelder 2007; Papaioannou and Siourounis 2008; Aslaksen 2010; Cuaresma, Oberhofer, and Raschky 2011; Ramsay 2011; Tsui 2011; Ross 2012; Wiens, Poast, and Clark, 2014; Cassidy 2019). While the specific findings vary from study to study, the literature found an association between natural resources and authoritarianism. More specifically, it found that oil wealth does not undermine consolidated democracies, but it does lower the probability that a non-democratic regime transitions to democracy.

Improvements in statistical techniques and data generation over the past decade have allowed scholars to reevaluate the claim that an abundance of natural resources—most particularly crude oil—fuels authoritarianism. The scholarly consensus is that the evidence is inconsistent with law-like statements about the effect of crude oil abundance on authoritarianism. The rise and fall of the resource curse hypothesis may therefore be instructive as scholars advance and test other theories about the distribution of authoritarianism and democracy around the planet.

In the first section we present the methodological challenges to drawing valid causal inferences about the political resource curse. In the second section we review the literature in light of those methodological challenges and in light of the improvements in technique and data to address them. We show how a consensus developed around the idea that there is not a political resource curse. In the final section we explore the importance of taking history seriously in making causal claims in comparative politics.

Section One: The Empirical Challenge

Empirical tests of the oil causes authoritarianism hypothesis are all basically set up to mimic a medical research experiment. Establishing causality means that a researcher can answer the question "What is the effect of changing X on Y, holding everything else constant?" In this

formulation, X is a "treatment," in the medical sense of the term, as in a dose of an antibiotic, and Y is an outcome, in the medical sense of the term, as in the health status of a patient with an infection. The goal of research is to identify the marginal effect of the treatment (e.g., the antibiotic) on the outcome (e.g., the infection), independent of everything else (Z) that might influence the outcome (e.g., some patients recover with bedrest, others with no intervention at all). In the context of the political resource curse, X is the level of crude oil production, Y is the level of democracy, and Z includes all other characteristics of societies that might affect their level of democracy.

In a medical research experiment, inferences about causality are validated by research design. The "holding all else equal" condition is satisfied through randomization: if the subject pool is sufficiently large, a researcher can assume that unobserved factors across subjects that might threaten inference are balanced across the treatment and control groups. The holding all else equal condition is also satisfied by the fact that the researcher can observe the subjects in the treatment and control groups prior to the administration of the treatment; she knows if they are balanced on the observables. Without pre-treatment balance, a researcher cannot draw the inference that differences in post-treatment outcomes are caused by the treatment. In addition, the researcher's inferences can be validated by titrating the dosage of X.

These conditions cannot be easily satisfied in empirical tests of the political resource curse hypothesis. In the first place, the data are observational, not experimental. Thus, the treatment and control groups cannot be balanced through randomization; they have to be balanced either by adding covariates or filtering the dataset. Second, the phenomenon to be studied is historical, not experimental. The resource curse is not an event, like say, receiving a dose of an antibiotic. It is a process that unfolds over time—but lots of factors, not just the

amount of oil produced, change over time. Third, countries can select into the treatment group (or titrate their dosage) by deciding whether and how much to invest in exploring for oil. Indeed, that decision may be endogenous to the country's political system; when dictators have unconstrained authority and discretion, investment tends to cluster in enterprises that are difficult to expropriate because running them requires proprietary knowledge of markets and technologies. Petroleum extraction companies are canonical examples of such enterprises (Haber 2006). Fourth, the units of analysis are not individual human beings (as in a medical research experiment), they are countries—complex social and economic systems that are the outcomes of historical processes set in motion by a wide variety of exogenous geologic and climatologic factors as well as by idiosyncratic events that occurred in the past.

To make these challenges to causal inference concrete we develop a dataset of crude oil production (in barrels, barrels per capita, and real dollars per capita) covering 164 countries large enough to have Polity2 scores from the Polity IV project (the standard proxy for the level of democracy in the political resource curse literature). We focus on crude oil output in dollars per capita because it has become the standard proxy for petroleum abundance in the resource curse literature (Ross 2006; Haber and Menaldo 2011; Andersen and Ross 2014; O'Conner, Blanco and Nugent 2018). We rescale Polity2 scores to run from zero to 100 to make interpretation easier: scores of 0 to 50 indicate authoritarian government, scores from 80 to 100 indicate democracy, and scores from 51 to 79 indicate a system that is neither fully authoritarian nor fully democratic. We code countries so that we can trace present-day nation states back in time, accounting for changes in country names and borders, following the conventions in Haber and Menaldo (2011). Our coverage starts in 1800 because the Polity IV project provides estimates of the level of democracy as of that date. The first positive observations of crude oil production in

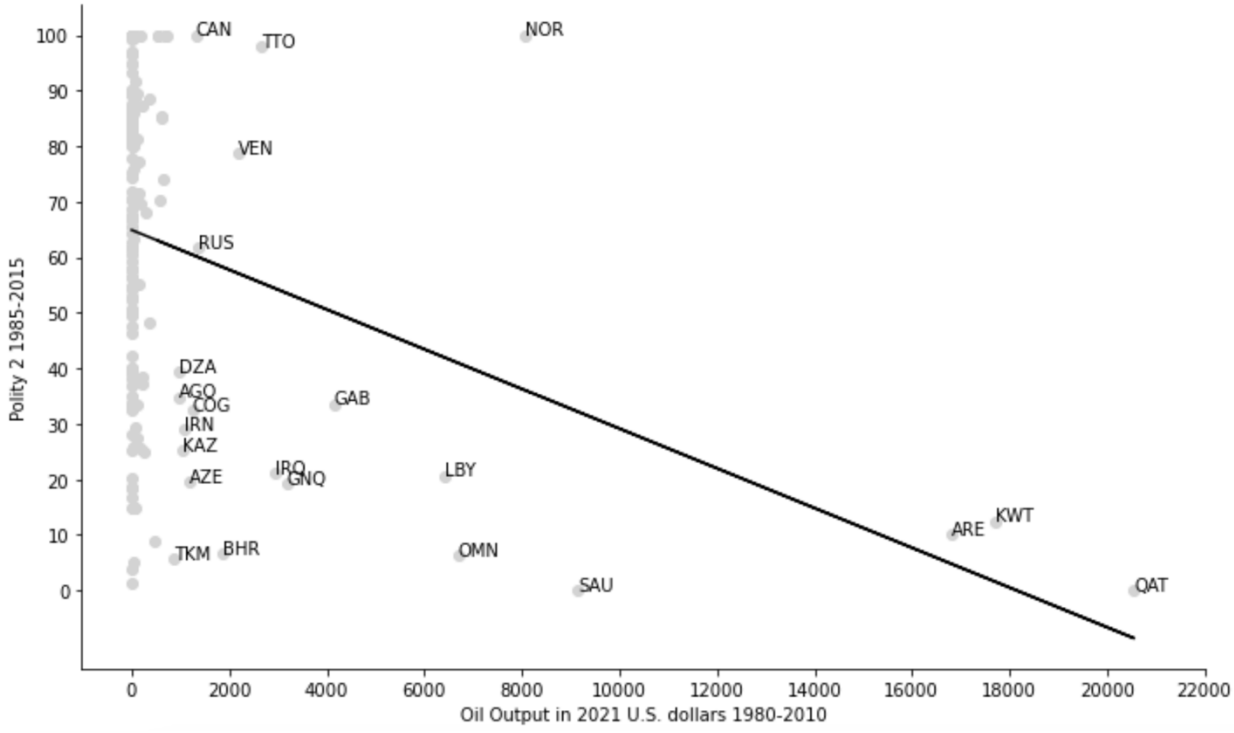
dollars per capita enter the dataset in 1861, only five years after Polish pharmacist Ignacy Łukasiewicz figured out how to refine crude oil on an industrial scale. We have put the dataset, as well as the codebook that explains our sources and coding conventions, online so that it can be used, extended, or improved upon by other researchers.[1]

It is revealing to look at a simple scatterplot of Polity scores against oil output per capita. Figure 1 presents countries' average Polity2 scores over the period 1985 to 2015 against their average crude oil output per capita over the period 1980 to 2010 (measured in constant 2021 U.S. dollars). We focus on oil production in the post-1980 period following Andersen and Ross (2014) which claims that this was the period when resource curse effects were in operation. We note, however, that the results displayed in Figure 1 are not sensitive to the window of time.[2] We lag the dependent variable five years following Ross (2001) and Andersen and Ross (2014). We note, however, that the results displayed in Figure 1 are not sensitive to lag length. To help with data visualization, we provide labels for countries that produced more than $500 of crude oil per capita per year, following Andersen and Ross (2014, 1000).

[1] See https://www.stephenhaber.com/data

[2] Graphs of sub-periods in the 1980-2015 window produce similar results, as does a graph of the window 1950 to 1984.

Figure 1: The Relationship Between Crude Oil Output and the Level of Democracy

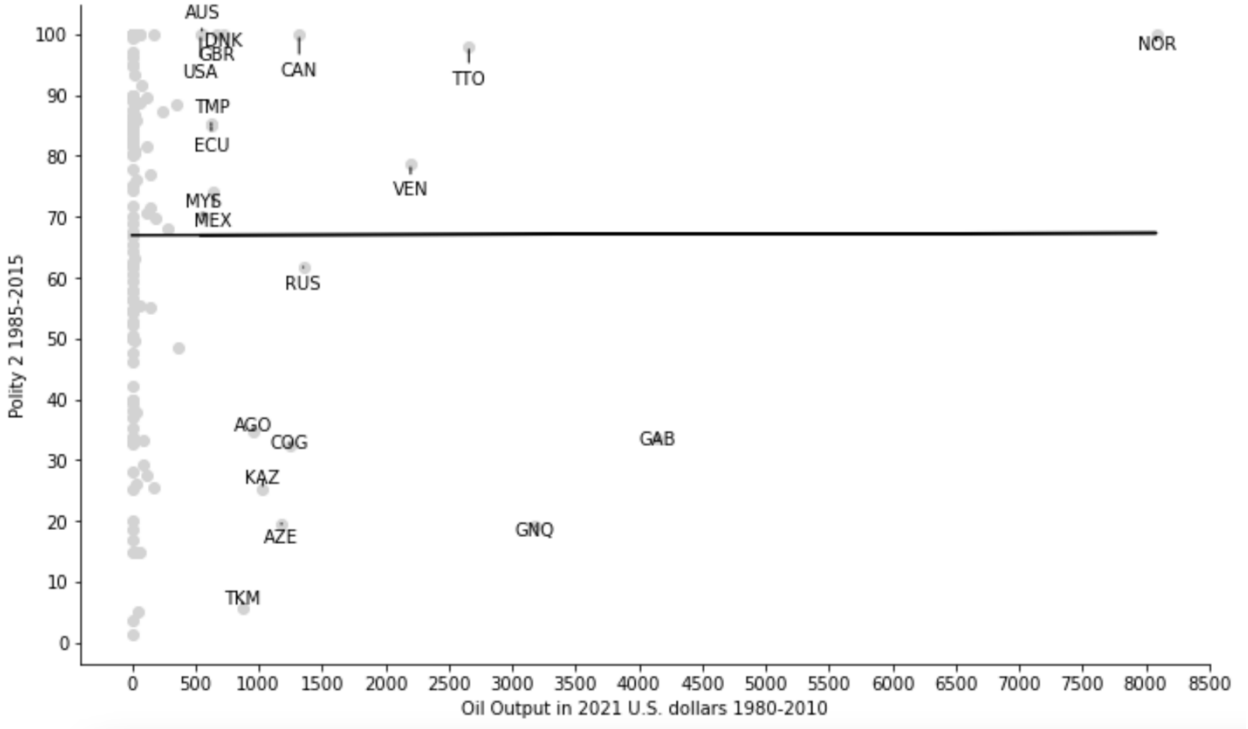


Several facts relevant to drawing inferences about the effect of crude oil on the level of democracy emerge from Figure 1. First, close to half of the countries in our dataset produced zero dollars of crude oil per capita per year. Second, there are numerous autocracies among that group of non-oil countries. Prominent examples include North Korea, Laos, Zimbabwe, Jordan, and Morocco. Third, there are numerous democracies among the group of countries that produced more than $500 in oil income per capita per year. Prominent examples include Norway, Canada, Denmark, Britain, Australia, and the United States. Fourth, the crude oil per capita data is not normally distributed. Rather, it is highly skewed: the median is $5, the mean is $745, and the standard deviation is $2,746. Plainly put, the datapoints are not densely and continuously arrayed along a straight line running from low levels of oil production and high levels of democracy (the upper left corner of the scatterplot) to high levels of oil production and low levels of democracy (the lower right corner of the scatterplot). Rather, there is a small

number of outlying observations in the lower right corner of that drive the regression line. Let us define an outlying observation as a country that produced at least one standard deviation beyond the mean in crude oil per capita ($3,491). Under that definition, there are eight outliers: in descending order Qatar, Kuwait, the United Arab Emirates, Saudi Arabia, Norway, Oman, Libya, and Gabon. Seven of those eight have Polity scores of zero or close to it. Remarkably, six of those seven are in a single world region—the Middle East and North Africa.

Figure 1 not only suggests that outliers would drive a multivariate regression estimated on this data, but that the countries of a single world region—the Middle East and North Africa—might account for all of the cross-country variance in the relationship between oil and democracy. Figure 2 therefore drops countries in the Middle East and North Africa (as defined by the World Bank's region codes). It shows that once those countries are dropped the regression line is flat; there appears to be no relationship between the level of crude oil production and the level of democracy.

Figure 2: The Relationship Between Crude Oil Output and the Level of Democracy (Excluding the Middle East and North Africa)



It would not take lengthy argumentation to show that the countries of the Middle East and North Africa are not just outliers in the distribution of oil production per capita; they are outliers on the basis of their climatologic and geologic factors—such as that they tend to be covered by vast deserts that historically sustained few human inhabitants. As a result, they are outliers in terms of their pre-oil social, economic, and political histories. Moreover, the non-oil producers in the region (with the exception of Israel) are also autocracies—and have been so for centuries. In the first place, this suggests that including the countries of the Middle East and North Africa in a regression designed to mimic a medical research experiment violates the assumption that the control and treatment groups are balanced.[3] In the second place, and even more fundamentally, it

[3] This problem cannot, contrary to the practice in much of the literature, be mitigated by adding a dummy variable for the Middle East and North Africa to a regression equation. Doing so gives

suggests that there may no effect at all of oil on democracy levels. Rather, there is a Middle East and North Africa effect that appears to be caused by other, non-oil, characteristics.

Section Two: The State of the Literature

Numerous studies either point to the conclusion that there is no effect of oil on the level of democracy or provide empirical evidence consistent with it. Karl (1997) argues that oil exerts pernicious effects on institutions, but also points out that Venezuela was a stable democracy for many decades despite of its oil wealth. Dunning (2008) shows that the political resource curse does not exist in Latin America, posits that it does not do so because of the region's highly unequal income distribution, and estimates cross-country regressions whose results are consistent with that hypothesis. Ross (2001) finds that, when fixed effects are included in a regression estimated on 113 countries from 1971 to 1997, "none of the right-hand-side variables –except for the lagged dependent variable and Log Income—are significant" (341). That is, Ross (2001) finds no significant relationship between crude oil production and autocracy when focusing only on within country variation. Treisman (2010, 89), also estimates regressions with country fixed effects, though it does so over a slightly longer period (1960 to 2005). It finds that "…it is only among very poor countries that oil and gas income correlates over time with less democracy." Jones-Luong and Weinthal (2010) argues that the political resource curse does not explain variance in development outcomes across Central Asian countries that were formerly part of the Russian Empire and the Soviet Union. Rather, variance across those countries in development outcomes is the product of choices made by governments regarding oil production and the use of the wealth it generates. Brooks and Kurtz (2016), on the basis of an empirical analysis of data

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countries in that region a different intercept term; they still contribute, however, to the slope coefficient.

covering 1960-2009, finds that, once the endogeneity of natural resource wealth and cross-national interdependence of regime types is accounted for, oil wealth does not curse democracy. Herb (1999) argues that the effect of oil wealth in the Middle East is conditional on the existence of hereditary monarchies that pre-dated the discovery of oil by centuries. Menaldo (2016) argues that there is an institutions curse, not a resource curse. He finds that after holding geography constant, oil is more likely to be explored for and extracted in dysfunctional states. Smith and Waldner (2021) find that the relationship between oil production and the stability of authoritarian regimes does not hold outside the Middle East. It also claims that an historically contingent event—specifically, interventions by the British government that gave rise to five, independent, petroleum-based principalities on the east coast of the Persian Gulf, rather than the single, unified Saudi kingdom—drives the cross-country relationship between oil and authoritarian survival.

The studies whose findings are inconsistent with the hypothesis of the resource curse tend to share an important feature; they take account of time. We cannot overstate the importance of focusing on the dimension of time; the resource curse is about a process that emerges within a country *over time*. Moreover, that process is characterized by positive and negative feedbacks that also operate over time. As Herb (2005) points out, for example, any claim about a negative effect of oil on democracy has to take into account the positive impact that oil had on the growth of per capita income over time, and thus has to take into account the positive feedback exerted by high per capita income levels on democratization. Plainly put, had Kuwait never found oil that much poorer Kuwait would be more likely to have the political and economic system of Djibouti than it would be to have the political and economic system of Sweden.

Beginning in the early 2010s researchers therefore began to use time-series-centric techniques to look for a statistical relationship between oil production and the level of democracy within countries over time. It was possible, they reasoned, that the inclusion of country fixed effects in regressions on oil and democracy had found results inconsistent with the hypothesis of the resource curse because the extant literature had relied on datasets that had short time dimensions—typically extending back no farther than 1970. This meant that researchers could neither observe the world's major petroleum producers during the period in which they produced no crude oil, nor could they see the impact of increases (or decreases) in crude oil revenues on the levels of democracy within those countries over time.

A glance at the dataset that accompanies this article gives a sense of the limitations imposed by only looking at post-1970 data. Azerbaijan, Canada, Romania, and the United States began to produce petroleum in commercial quantities in the 1860s; Indonesia in the 1890s; Mexico and Russia in the 1900s; Iran, Brunei, and Trinidad and Tobago in the 1910s; Iraq, Ecuador, Colombia, and Venezuela in the 1920s; Saudi Arabia and Bahrain in the 1930s; Kuwait, Qatar, Turkmenistan, and Britain in the 1940s; Algeria in the 1950s; and Gabon, Libya, Malaysia, Oman, Nigeria, and the United Arab Emirates in the 1960s. Moreover, the country data series display periods of boom and bust. Mexico provides an example. It was the world's third most important oil producer (after Azerbaijan and the United States) in the late 1910's; its oil revenues then collapsed from the 1920s until the 1970s. Once new technologies became available and world oil prices jumped in the 1970s, Mexico experienced a second oil boom. That boom was followed by a bust from the mid-1980s to the mid-1990s, a boom in the early 2000s, and then another bust in the 2010s. Mexico's per capita oil production in 2021 (in real dollars) was lower than it was in 1920.

We cannot overstate the importance of testing the predictions of the resource curse hypothesis by focusing on within-country variance. When a researcher thinks about causality in the way that it is understood in a medical research experiment, causal effects are defined on individual units. As Smith and Waldner (2021, 34) make clear, "…there is no such thing as a between-unit causal effect. Any difference between two units reflects either different treatment status or heterogeneous responses to treatment given covariates."

Taking a time-series-centric approach to testing the predictions of the resource curse hypothesis comes, however, with considerable methodological challenges. First, and most obviously, it requires datasets with long time dimensions. Second, it requires regression frameworks that allow a researcher to distinguish between short run and long run effects. Third, lots of things change within a country over time that might affect the level of democracy. Fourth, all causal statements imply a counterfactual—the state of the treated unit that would exist in the absence of the "treatment." Finally, average treatment effects estimated on the basis of within-country variance might miss important relationships of oil on democracy within groups of countries. Perhaps oil wealth only impedes democratization in poor countries, or unequal countries, or African countries? Or, perhaps oil only impeded democratization during specific periods in world history—such as during the Cold War, or after oil prices discontinuously jumped as a result of the Arab oil embargo of 1973 and the subsequent management of oil prices by OPEC?

Haber and Menaldo (2011) address these challenges to causal inference in the time series analysis of the relationship between oil and democracy.[4] It is based on four hand-coded datasets

[4] Aslaksen (2010) focuses on within-country variance in an analysis of the relationship between oil and democracy and finds results consistent with the predictions of the political resource curse hypothesis. Aslaksen (2010) relies, however, on a dataset that is truncated with respect to time,

of natural resource reliance or natural resource abundance with time dimensions that extend back into the 19th century: fiscal reliance (the percentage of government revenues from oil, gas, and minerals); total oil income per capita (oil production in real dollars per capita, the same measure employed in Figures 1 and 2 of this paper); total fuel income (crude oil, natural gas, and coal production in real dollars per capita); and total resource income (crude oil, natural gas, coal, precious metals, and industrial metals production in real dollars per capita). Haber and Menaldo (2011) also uses two different measures of the level of democracy; the Polity score and a bivariate indicator of democracy/autocracy.

The data in Haber and Menaldo (2011) are analyzed using Error Correction Models (ECM), which are designed to detect the impact of changes in an independent variable on the long-run equilibrium level of the dependent variable, controlling for other time varying factors. To mitigate concerns about spurious time series correlation, Haber and Menaldo (2011) employs a battery of panel cointegration tests. To search for evidence of heterogenous effects by country groups, Haber and Menaldo (2011) estimates ECM regressions on sub-samples using the data on total oil income per capita, total fuel income per capita, and total resource income per capita by world regions, income levels, income inequality levels, and levels of natural resource production. To search for evidence of heterogenous effects by time period, Haber and Menaldo (2011) estimates separate ECM regressions for the above three proxies of resource abundance on a sub-sample that includes only post-1972 observations.

To address the question of the counterfactual level of democracy that would have existed in a natural resource reliant country had it not exploited its resources, Haber and Menaldo (2011)

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the period 1972-2002. In addition, Aslaksen (2010) abandons yearly data observations for five-year averages, thereby compressing the data into only six periods.

provide two counterfactuals. The first is the natural resource producing country itself during the periods when it produced no or little income from natural resources. Given that natural resource income is characterized by booms and busts, there are multiple such periods in country data series. The second is a synthetic country that is represented by the average Polity score of the non-resource abundant countries in the resource-abundant country's geographic/cultural region in that same year. That average non-oil Polity score is then subtracted from Polity score of the natural-resource-abundant country, generating a variable called "Net Polity." Haber and Menaldo (2011) then re-estimate their total oil income per capita, total fuel income per capita, and total resource income per capita regressions on this Net Polity variable, mimicking a difference in difference estimator.

The core result of Haber and Menaldo (2011) is that there is no evidence of a resource curse, while there is some (weak) evidence of a political resource blessing. Haber and Menaldo (2011) also finds no evidence of heterogenous effects, whether the sample is truncated by world region, by level of GDP per capita, by level of income inequality, or by period of time. It concludes that: "This is not to say that there may not have been instances in which natural resource rents helped sustain a dictatorship. It is to say, however, that there is a big difference between pointing to these instances and making sweeping, law-like statements." (25).

Andersen and Ross (2014) provides a rebuttal to the claims in Haber and Menaldo (2011). It makes three core claims. First, Haber and Menaldo (2011) only estimates regressions on the full 1800-2006 time period; it does not consider the possibility of heterogenous effects of oil by time period (p. 1005). Second, Haber and Menaldo (2011) does not specify a counterfactual level of Polity other than a comparison of countries against themselves over time (p. 1004). And third, a regression that takes into account both the post-1970s negative effect of

oil on democracy and that employs an appropriate counterfactual yields a negative coefficient of large magnitude.

The first two claims in Andersen and Ross (2014) are erroneous.[5] The robustness of the third claim—that there is indeed a political resource curse if one properly models the counterfactual and truncates the dataset to years 1980 to 2006—has been assessed by other scholars whose results we discuss below, but for now we focus on the interpretation of the magnitude of the effect claimed in Andersen and Ross (2014, 1011). "The substantive effects of oil income on democracy in this model are large. Taking the dynamic fixed-effects model with a 5-year lag (Table 5, column 3) as our baseline, and using the 1980 temporal break, a one standard deviation rise in total oil income (US $2,618) leads to a one point reduction in the Polity score (using Haber and Menaldo's 0-100 scale) over a 5-year period, and a 0.6-point reduction over the long run, once Polity has stabilized. When we move the temporal break to 1984, the effects are much larger—a drop of 4.7 points over 5 years, and a drop of 2.9 points in the long run."

Interpretating the coefficients from regression results as the effect of moving one standard deviation in the independent variable of interest on the magnitude of the dependent variable is problematic when the distribution of the independent variable is highly skewed. There are only eight countries that produce more than one-standard deviation of total oil income per capita in the Haber and Menaldo (2011) dataset analyzed in Andersen and Ross (2014). They are, in descending order: Qatar, the United Arab Emirates, Kuwait, Saudi Arabia, Norway, Oman, Libya, and Gabon. Based on the Andersen and Ross (2014) claim that an increase in one

[5] See Haber and Menaldo (2011, 19-20, and tables 3 and 5) which shows and discusses the results for separate regressions for the period 1973-2006. See Haber and Menaldo (2011, 23-25 and table 8), which shows and discusses the results of the "Net Polity" variable.

standard deviation in per capita oil output ($2,618) produces a 2.9 percentage point drop in Polity over the long run (the larger of the two, post-1980 estimates reported in Andersen and Ross 2014), we can estimate the long-run effect of each country going from its average level of oil production over the period 1980 to 2006 to zero oil production. Qatar, for example, which would display the largest effect because it has the highest mean oil production ($15,679), would move 6.0 standard deviations to get to zero oil. Qatar's observed Polity score is, however, a 0. Moving Qatar's oil production to zero would, therefore, move its Polity score from a 0 to a 17 (on a 0 to 100 scale). Qatar's counterfactual, zero oil Polity score of 17 would imply a level of democracy roughly equivalent to that of Myanmar (average Polity score from 1980 to 2006 of 13), Morocco (14), China (15), Cuba (15), Laos (15), Vietnam (15), and Mauritania (19). The same is true for the other six countries that produced at least one standard deviation in oil per capita: Saudi Arabia's Polity score would move from a 0 to an 8; Oman from a 4 to a 9; Bahrain from a 5 to a 7; the UAE from a 10 to a 25; Kuwait from an 11 to a 24; Libya from a 15 to a 20; and Gabon from a 20 to a 24. None of those counterfactual Polity scores would change the classification of those countries; they would still be highly autocratic (recall autocracies run from 0 to 50 on the 0 to 100 Polity scale). Moreover, for most oil producers, whose output is only a fraction of a standard deviation, the effect of reducing their oil production to zero on their Polity score would be trivial. Iraq's Polity score would move from a 5 to a 6. Angola would move from a 26 to a 27. The Congo Republic would move from a 29 to a 30. Iran would move from a 29 to a 30. Russia would move from a 53 to a 54. In short, none of those countries are democracies and none would be democracies if they had never discovered oil according to the estimates from Andersen and Ross (2014).

Other scholars have examined the difference in claims between Haber and Menaldo (2011) and Andersen and Ross (2014) by bringing newer time series econometric methods to bear. O'Conner, Blanco, and Nugent (2018) use a battery of error correction and distributed lag models to analyze the relationship between natural resource abundance and democracy from 1974 to 2012. Their core claim (2018, 264) is that: "We find no robust long-run effect of oil abundance on any of the following measures of democracy: Polity, Polcon, Civil Liberties, or Political Rights, over the period 1974–2012. We use different country and period samples to respond to the findings of others suggesting that the effects of oil abundance may differ between Latin America, the Middle East, mature oil producers, or that they become significantly negative only post-1980. In each case we still do not find a robust relationship."

O'Conner, Blanco, and Nugent (2018) finds that the Andersen and Ross (2014) claim of a post-1970s resource curse is not robust to alternative specifications. O'Conner, Blanco, and Nugent (2018) points out that Andersen and Ross (2014) finds the negative coefficient on oil per capita by moving away from an ECM regression framework, instead employing a fixed effects regression over the entire 1800-2006 dataset that includes five year time lags and an interaction of the oil per capita variable with a post-1980 dummy variable. A more direct approach to testing the post-1980s resource curse hypothesis, according to O'Conner, Blanco, and Nugent (2018), is to truncate the data to the post-1980 observations and estimate ECM regressions. When that test is carried out "the main effect of oil, and hence the long-run effect, is positive and statistically significant at the five percent level. While this result is clearly inconsistent with AR's theory, the two results together suggest that the long-run negative effect of oil on Polity is not robust."

These results are consistent with the central finding of Brückner, Ciccone, and Tesei (2012), which focuses on oil extraction (net oil exports over GDP) rather than oil abundance (oil

production per capita), over the period 1960 to 2007. It finds that countries with greater net oil exports over GDP see improvements in democratic institutions following upturns in international oil prices: a one percentage point increase in the growth of per capita GDP induced by a positive oil price shock increases the Polity score by two percentage points over the long run.

Liou and Musgrave (2014) takes an important step in causal identification by exploiting the price spike caused by the 1973 Arab oil embargo as an exogenous shock that turned countries with latent oil industries into resource reliant states. It identifies seven countries as assigned to treatment by the shock—Algeria, Ecuador, Gabon, Indonesia, Mexico, Nigeria, and Trinidad and Tobago—and assesses whether they behaved as the resource curse theory predicts. Liou and Musgrave (2014) also takes a takes a step forward by employing synthetic controls to assess how those states would have behaved if they had lacked a latent oil industry. The analysis finds that only one of the seven countries, Mexico, behaved as predicted by the theory. Liou and Musgrave (2014, 1064) concludes that "…our results are broadly in agreement that the curse seems to be only sporadically in operation outside the Gulf states."

Section Four: Theory and History

The rise and fall of the theory of the resource curse is an example of the normal progression of science. Researchers observe a pattern and build a theory based on it. Other researchers then test the predictions of the theory using the data that is most easy to access and the analytic tools then available. Yet other researchers then develop additional data and employ new analytic tools. This process sometimes provides additional evidence consistent with the theory, sometimes provides evidence suggesting that the theory needs modification, and sometimes (as in the case of the resource curse) provides evidence falsifying the theory.

Are there any general lessons for the field of comparative politics to be had from the rise and fall of the resource curse? We think that there is one very big one. When a theory is about a process that is claimed to unfold over time, time must be taken seriously. This has implications beyond building datasets with long time dimensions. It implies that, in the process of theory construction, researchers should be mindful of the order in which events occurred. It also implies that researchers should have substantive knowledge about the places in which those events occurred so that they can pose plausible counterfactuals—the state of those places had the event not occurred. In short, knowledge of statistical methods is a necessary input to good social science—but so is knowledge of actual places, now and in the past.

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